

**CLAIMS**

1. A broadband transmission path modem comprising:
  - a first interfacing section that terminates a broadband transmission path through which speech signals are transmitted as a sequence of packets in compliance with a predetermined communication protocol;
  - a second interfacing section that forms a radio access link used for accommodation of a terminal accessible to said broadband transmission path; and
  - a controller that interfaces functions of an entity realizing said communication protocol and an entity realizing said radio access link and converts transmission information to be delivered to realize an added function, the functions being defined in advance as a specification of the radio access link, the added function being a function not defined in the specification.
2. The broadband transmission path modem according to Claim 1, wherein said controller assigns a single channel on said radio access link to a call occurring first in each terminal accessible to said broadband transmission path, and multiplex-transmits information about setup of the first call and of a call occurring subsequent to the first call by using the single channel.
3. The broadband transmission path modem according to Claim 1, wherein said added function is a function to hold a communication channel which is assigned to a completed call and formed in said broadband transmission path or both of said broadband transmission path and said radio access link, the completed call being specified by a terminal from a plurality of completed calls that occur and persist in the terminal accommodated via said radio access link.
4. The broadband transmission path modem according to Claim 1, wherein said added function is a function to deliver transmission information between a

communication channel assigned to a single completed call specified by a terminal and a single channel assigned to the terminal on the radio access link, the communication channel being one of communication channels which are formed in said broadband transmission path and individually assigned to a plurality of completed calls that occur and persist in the 5 terminal accommodated via said radio access link.

5. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to perform a number translation of an originating call that occurs in a terminal accommodated via said radio access link or a line transmission path, and to cause, according to a result of the number translation, the originating call to 10 arrive at another terminal accommodated via the radio access link or the line transmission path.

6. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to cause, when it is identified that an originating call occurring in a terminal is to be an incomplete call, the originating call to arrive at a 15 terminating party indicated by an alternative number given by the terminal, the terminal being accommodated via said radio access link or a line transmission path and to be routed via said broadband transmission path as an outgoing route.

7. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to set up calls which occur and persist in individual 20 terminals accommodated via said radio access link and with which making a call is possible via said broadband transmission path as well as to assign a communication channel to the calls via one or both of said radio access link and said broadband transmission path.

8. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to convert, when a terminal accommodated via said 25 radio access link notifies a number, between the number and an IP address of the terminal in

a process of call setup for the terminal, or notifies the number and the IP address to a server involving with the conversion.

9. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to judge whether or not a terminating call is able to  
5 arrive at a terminal accommodated via said radio access link or a line transmission path, and  
to transfer the terminating call to another terminal accommodated via the radio access link or  
the line transmission path when a result of the judgment is negative.

10. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to judge whether or not an originating call from a  
10 terminal accommodated via said radio access link or a line transmission path is able to arrive  
at a terminating party, and to transfer the originating call to another terminating party  
specified by the terminal when a result of the judgment is negative.

11. The broadband transmission path modem according to Claim 1, wherein  
said added function is a function to page, when an incoming call occurs via said  
15 broadband transmission path and is to arrive at any of terminals accommodated via said radio  
access link or a line transmission path, a plurality of terminals accommodated via the radio  
access link and the line transmission path as candidates for a terminating party of the  
incoming call.

12. The broadband transmission path modem according to Claim 1, further comprising  
20 a third interfacing section that interfaces an access point with a subscriber line  
accessible via a circuit switched network, the access point connected to a store-and-forward  
switching network or a message switching network being accessible via said broadband  
transmission path, wherein

25 said added function is a function to authenticate a terminal accommodated via said  
radio access link, and to access, upon completion of the authentication, said

store-and-forward switching network or message switching network based on said predetermined communication protocol via said broadband transmission path and said access point.

13. The broadband transmission path modem according to Claim 1, wherein

5 said added function is a function to multicast, to all of communication channels of a plurality of completed calls that occur and persist in terminals accommodated via said radio access link, transmission information delivered via the other communication channels.

14. A radio terminal device comprising:

a first interfacing section that interfaces with a mobile communication network;

10 a second interfacing section that interfaces with a radio access link other than said mobile communication network; and

a controller that sets up one call which occurs in a local station and whose communication channel is formed via said radio access link, and sets up another call whose communication channel is formed via said mobile communication network or said radio access link, and maintains, when both of the calls persist as completed calls, a speech relating to one of the completed calls specified by an operator and holds the communication channel of the other completed call.

15. A radio terminal device comprising:

a first interfacing section which interfaces with a mobile communication network;

20 a second interfacing section used for accessing a radio access link other than said mobile communication network, when detecting a state that the access is possible; and

a controller that sets up one call which occurs in a local station and whose communication channel is formed via said radio access link, and sets up another call whose communication channel is formed via said mobile communication network or said radio access link, wherein

when detecting the state, said second interfacing section delivers, to said radio access link, a number assigned in advance to a local station and conforming to a numbering plan of a network accessible via said radio access link.

16. A radio terminal device comprising:

5 a first interfacing section that interfaces with a mobile communication network;  
a second interfacing section used for accessing a radio access link other than said mobile communication network, when detecting a state that the access is possible;  
a profile storage section in which a number given to a terminal is registered, the terminal is to be a transfer destination of a terminating call that is to arrive at a local station;  
10 and  
a controller that sets up one call which occurs in a local station and whose communication channel is formed via said radio access link, and sets up another call whose communication channel is formed via said mobile communication network or said radio access link, wherein

15 when detecting the state, said second interfacing section delivers the number registered in said profile storage section to said radio access link.

17. A radio terminal device comprising:

a first interfacing section that interfaces with a mobile communication network;  
a second interfacing section used for accessing a radio access link other than said mobile communication network, when detecting a state that the access is possible;  
a number storage section in which a plurality of numbers given to individual opposite parties are registered, the opposite parties being to be terminating parties of an originating call from a local station; and

25 a controller that sets up one call which occurs in a local station and whose communication channel is formed via said radio access link, and sets up another call whose

communication channel is formed via said mobile communication network or said radio access link, wherein

when detecting the state, said second interfacing section delivers all of the numbers registered in said number storage section to said radio access link.

5 18. A radio terminal device comprising:

a first interfacing section that interfaces with a mobile communication network;

a second interfacing section used for accessing a radio access link other than said mobile communication network, when detecting a state that the access is possible;

a number storage section in which a plurality of numbers given to individual opposite

10 parties are registered, the opposite parties being to be terminating parties of an originating call from a local station; and

a controller that sets up one call which occurs in a local station and whose communication channel is formed via said radio access link, and sets up another call whose communication channel is formed via said mobile communication network or said radio access link, and that re-originates, when it is determined that one of the calls as an originating call is incomplete, a call by using a number registered in said number storage section and given to an opposite party as a terminating party of the originating call.

19. The radio terminal device according to Claim 14, wherein

when an originating call occurs in the local station, said controller causes the

20 originating call to arrive at a terminating party via one of said mobile communication network and said radio access link which conforms to all or part of a result of a number translation of the terminating party of the originating call, an instruction from an operator, and a predetermined program.

20. The radio terminal device according to Claim 15, wherein

25 when an originating call occurs in the local station, said controller causes the

originating call to arrive at a terminating party via one of said mobile communication network and said radio access link which conforms to all or part of a result of a number translation of the terminating party of the originating call, an instruction from an operator, and a predetermined program.

5 21. The radio terminal device according to Claim 16, wherein

when an originating call occurs in the local station, said controller causes the originating call to arrive at a terminating party via one of said mobile communication network and said radio access link which conforms to all or part of a result of a number translation of the terminating party of the originating call, an instruction from an operator, and a predetermined program.

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22. The radio terminal device according to Claim 17, wherein

when an originating call occurs in the local station, said controller causes the originating call to arrive at a terminating party via one of said mobile communication network and said radio access link which conforms to all or part of a result of a number translation of the terminating party of the originating call, an instruction from an operator, and a predetermined program.

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23. The radio terminal device according to Claim 18, wherein

when an originating call occurs in the local station, said controller causes the originating call to arrive at a terminating party via one of said mobile communication network and said radio access link which conforms to all or part of a result of a number translation of the terminating party of the originating call, an instruction from an operator, and a predetermined program.

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24. The radio terminal device according to Claim 14, wherein

for delivering information about setup of a call that occurs first in the local station and of a call that occurs subsequent to the first call, said controller multiplex-transmits the

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information by using a single channel assigned to the first call and formed on said radio access link.

25. The radio terminal device according to Claim 15, wherein

for delivering information about setup of a call that occurs first in the local station  
5 and of a call that occurs subsequent to the first call, said controller multiplex-transmits the information by using a single channel assigned to the first call and formed on said radio access link.

26. The radio terminal device according to Claim 16, wherein

for delivering information about setup of a call that occurs first in the local station  
10 and of a call that occurs subsequent to the first call, said controller multiplex-transmits the information by using a single channel assigned to the first call and formed on said radio access link.

27. The radio terminal device according to Claim 17, wherein

for delivering information about setup of a call that occurs first in the local station  
15 and of a call that occurs subsequent to the first call, said controller multiplex-transmits the information by using a single channel assigned to the first call and formed on said radio access link.

28. The radio terminal device according to Claim 18, wherein

for delivering information about setup of a call that occurs first in the local station  
20 and of a call that occurs subsequent to the first call, said controller multiplex-transmits the information by using a single channel assigned to the first call and formed on said radio access link.

29. A program that causes a computer to function as a controller that constitutes the broadband transmission path modem according to Claim 1.

25 30. A program that causes a computer to function as a controller that constitutes the

radio terminal device according to Claim 14.

31. A computer-readable storage medium that stores a program to cause a computer to function as a controller that constitutes the broadband transmission path modem according to Claim 1.

5 32. A computer-readable storage medium that stores a program to cause a computer to function as a controller that constitutes the radio terminal device according to Claim 14.